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ACCELERATED PROGRAMMES IN CHILDREN'S NURSING TO TACKLE THE WORKFORCE GAP IN THE UNITED KINGDOM: A COST-CONSEQUENCES ANALYSIS

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Abstract

Background: With alarming vacancy rates and dipping availability of European nurses, remedies for the shortage of nurses in the UK are urged. To accelerate the registration of new children's nurses, a health education funder commissioned two education programmes within its region. The first is a 1-year programme designed for UK-registered nurses in adult or mental health. The second is a 2-year programme for individuals, not registered as nurses, who are child or social care graduates with experience of working with children and young people.

Objectives: To evaluate the economic effectiveness of two accelerated children's nursing education programmes.

Design: Economic evaluation.

Settings: Two accelerated children's nursing education programmes in two sites in England.

Participants: Nursing students enrolled in both programmes (N=20).

Methods: We adopt a cost-consequences analysis to analyse the programmes' costs and outcomes.

Results: All graduates were heading for posts within the region where they studied, a favourable outcome for the funder. However, the first programme would deplete the workforce in other nursing fields, whereas the second, by quickening the graduates' career progression, would not dent the long-term shortage in entry roles. Given our small sample size, these impacts may differ if the programmes have wider implementation.

Conclusions: Our evaluation measures the effectiveness of two novel accelerated education programmes in tackling the nurses' shortage. Concurrently, it contributes to developing a standardised approach for future economic evaluations in nursing education.

Keywords

Cost-consequences analysis; Nursing education research; Nursing economics; Pediatric nursing; Recruitment; Retention.

1. <u>INTRODUCTION</u>

In the UK, the shortage of nurses has become a prominent issue. A recent report by the Health Committee at the House of Commons (2018) indicates that, out of 36,000 nursing vacancies posts, approximately 3,000 are unfilled: for the four fields of nursing practice, the overall vacancy rates are all above 10%. Further, the UK decision to leave the European Union (EU) has introduced another level of uncertainty and analyses of nursing workforce trends show vacancies are rising across all UK nations (Royal College of Nursing, RCN, 2017).

The input of nurses from the European Economic Area (EEA), which effectively counteracted the nursing workforce shortage, has recently downsized. In 2016/2017, the number of EEA nurses who joined the Nursing & Midwifery Council register decreased by 89% on the previous period, whereas the number of those who left the register increased by 67%. Moreover, there are fewer nurses in the UK relative to the population compared to other developed countries (House of Commons' Health Committee, 2018). However, shortages to nursing workforces are also experienced across other EU countries (Barriball et al., 2015) and beyond, e.g. Australia (Dawson et al., 2014).

The loss and replacement of nursing staff produce direct and indirect costs. Direct costs (e.g. for advertising, recruitment and training) are generally more tangible than indirect costs (e.g. losses linked to productivity and organisational knowledge), which are instead more subtle (Jones et al., 2007). Considering that not all departing nurses are the same, Jones (2005) estimates that nurse turnover costs may be 1.3 times the salary of a departing nurse. Interlinked with nurse turnover is nurse retention, whose benefits could be considered as avoided costs of nurse turnover (Jones et al., 2007) and may enhance the quality of care, and the safety and satisfaction of patients and nurses (Page, 2004).

Therefore, investigating the shortfall in the nursing profession should focus on both recruitment and retention aspects. To improve both, easing training and workplace pressures, career advancement and work flexibility are most commonly advocated by nurses (House of Commons' Health Committee, 2018, Health Education England, 2016, Admi et al., 2018 ten Hoeve et al., 2017). On training and working pressures, senior staff may provide suboptimal support to pre-registration or new nurses, potentially exacerbating their already challenging experience. On career advancement, existing nurses may see transferring into new nursing fields beneficial; however, bureaucratic and re-training barriers may make transferring burdensome. On work flexibility, when nurses' preferences have been incorporated into management practices, positive impacts have emerged on nurses' labour supply (Eberth et al., 2016).

Children's nursing is not exempt from this involution. The gap between number of patients and children's nurses is widening: while approximately 25% of the UK population are under 19 years old, only around 5% of registered nurses have undertaken children's nursing programmes. Consequently, expanding the number of children's nurses is required to meet demand and uphold standards of care (Royal College of Paediatrics and Child Health, RCPCH, 2017).

1.1. Two accelerated programmes in children's nursing

To obviate the shortfall of children's nurses, in 2016 one regional health education funder, Health Education England (working across the North, HEE thereafter), launched two novel pre-registration children's nursing education programmes in two sites. The programme at Site 1 lasted 1 year, targeted UK-registered nurses in adult or mental health, and focused on developing the skills to provide safe and effective nursing care for children and young people (CYP). The programme at Site 2 lasted 2 years and targeted graduates with a degree on child or social care and experience of working with CYP. To join the programme, graduates had to submit a Recognition of Prior Learning portfolio while working as healthcare assistant for CYP for a 4 to 6-month period. They could then start the programme by enrolling directly in the second year of a 3-year pre-registration Master's course in children's nursing.

The two programmes were designed to accelerate role preparation. Site 1 aimed to strengthen the retention of existing nurses by facilitating transfer between different nursing fields, and Site 2 aimed to speed up the recruitment and career progression of Master's graduated children's nurses. To measure the programmes'

effectiveness, an evaluation was required by HEE and is presented here. Besides clinical objectives, the achievement of economic effectiveness was also scrutinised, namely if the costs had been outweighed by the benefits generated by the recruitment and retention levels. Given important limitations, such as the small number of students recruited (N=20), caveats will accompany our findings.

2. BACKGROUND/LITERATURE REVIEW

Conducting an economic evaluation of an education programme in children's nursing does not seem straightforward, as similar evaluations are sparse. Nevertheless, insights from the literature on identifying and quantifying costs and outcomes of such programmes could still be gathered. The next sub-sections will discuss the rationale behind the methodology chosen for the economic evaluation, and the abovementioned insights.

2.1. Methodological choice

While economic evaluations of education programmes exist (Curtis and Netten, 2007, Friedman et al., 2013), economic evaluations of two (or more) competing programmes seem lacking and no standardised evaluation method emerges. Given this lack of direction, our methodological choice was driven by the characteristics of the costs and outcomes of the programmes.

In general, costs and outcomes associated with these programmes are different (quantitative and qualitative) and disparate (ranging from human resources organisation to overall quality of care provided). Within the context of our evaluation, the diverse costs, ascribable to the participating universities and National Health Service (NHS) children's hospitals, and outcomes (e.g. recruitment and retention levels) call for the adoption of a method able to capture this variety. Considering the lack of methodological guidance in the literature, we identified a pragmatic method in the cost-consequences analysis (CCA).

A CCA is recommended when the economic evaluation concerns interventions producing disparate effects. In CCA, disaggregated costs are evaluated against a range of outcomes, enabling the decision-maker to establish their relative importance (Drummond et al., 2005). Thus, CCA seems a particularly appropriate choice for our evaluation, where costs are evaluated against different outcomes, ranging from the recruitment and completion rates of the programmes, to the retention rate of the graduates.

In sum, our study aims to evaluate both accelerated children's nursing programmes by adopting a CCA to answer these questions: What are the programmes' costs and outcomes? Consequently, are the programmes economically effective?

2.2. Identification and quantification of costs and outcomes

Despite the lack of a standardised method, a literature review uncovered approaches to identify and quantify cost and outcomes of nursing education programmes. On identifying the costs, a starting point, widely used in the health economics literature, is the Unit Costs of Health and Social Care report (Curtis and Burns, 2016), which provides estimates of the NHS staff costs. With respect to training a pre-registration children's nurse, these cost components are identified:

- Tuition;
- Infrastructure;
- Clinical placement;
- Lost production (for the time spent by staff away from their posts).

Curtis and Netten (2007) attempted to quantify these training costs when nurse practitioners (comparable to children's nurses) take over general practitioners' tasks. Costs are incurred during a nursing degree, while returns are gained over a nurse's working life. To estimate a yearly value of this investment, the following are quantified:

- Initial investment in training;

- Total return on the investment (number of full-time equivalent years worked);

- Distribution of working life (considering career breaks and early retirement).

The investment in training includes the abovementioned cost components. Tuition costs are an average of fees charged by universities providing nursing degrees, while clinical placement costs are obtained from a training provider. Lastly, lost production costs are computed considering the work that could have been provided by a nurse working full-time, instead of undertaking training. Costs are then discounted and annuitized to distribute the future returns on the investment.

While the costs' identification and the quantification appear viable, the same may not be true for outcomes. Outcomes are normally considered as avoided costs, such as avoided nurse turnover, patient and nurse dissatisfaction, and ultimately decline in care quality (Friedman et al., 2013). Their quantification can be arduous: for instance, the extent of the avoided nurse turnover can only be presumed, while the avoided decline in care quality may imply adopting surrogate quantitative (not necessarily monetisable) measures, such as infection rates and accumulated experience.

Overall, these approaches shed some light on how to identify and quantify of costs and outcomes of nursing education programmes and, where possible, were considered for our evaluation, as the next Section illustrates.

3. METHODS

This Section presents our economic evaluation, in terms of its attributes, the data sources and collection, and the CCA plan.

3.1. Economic evaluation attributes

The attributes of the economic evaluation are reported in Table 1; here the key points are summarised. The evaluation focused on the costs and outcomes of the two accelerated educational programmes. As the evaluation was commissioned by HEE, its perspective was adopted. Each participating body's costs are calculated and added to quantify the costs ultimately borne by HEE. The outcomes are indicators of how successful the programmes were: from how many students were recruited, to how many completed the programme, to how many were retained within the participating NHS children's hospitals (or related Trusts). Data were captured by focus groups with students and staff, and desk review of administrative documentation and grey literature. Lastly, data was analysed using a CCA with a time horizon reflecting the programmes' duration. To facilitate interpretation, costs were estimated for 2016/2017, when both programmes were launched.

[Insert Table 1 here]

3.2. Data sources and collection

On costs, our data targets concerned those to:

C1. NHS provider Trusts;

C2. Universities;

C3. HEE (C1+C2).

By adapting, where possible, the abovementioned approaches in identifying and quantifying costs (Curtis and Burns, 2016, Curtis and Netten, 2007) to our context, we aimed to quantify these cost components:

- Tuition;

- Infrastructure;

- Teaching and mentoring staff;

- Administration;

- Any other cost impacting on the students' experience.

Attempts to obtain these costs from the participating bodies were unsuccessful. Therefore, we desk reviewed administrative documentation and grey literature to base the CCA on robust data: in the end, we found data sources on costs of the NHS Trusts (Department of Health, 2016) and the universities (KPMG, 2017).

On the outcomes, the following were sought:

O1. Recruitment of students;

O2. Completion of programmes;

O3. Professional destinations of graduates, retention and work patterns.

The participating universities provided data on all outcomes (to different extents). Once the professional destinations of the graduates were known, retention rates could be computed. Moreover, telephone interviews with some graduates already in post (Site 1) and a focus group with students about to graduate and take up posts[1] (Site 2) were conducted to verify their professional destinations.

3.3. CCA plan

The CCA plan had two stages: data manipulation and transformation; and presentation and interpretation of results. For the first stage, raw cost data, from administrative documentation and grey literature, were used to estimate the costs for the period of interest (2016/2017). Raw outcome data provided by staff and students were transformed into numeric form where necessary. These activities aimed to deliver interpretable results, readily usable by the policy-maker (HEE): as such, the second stage involved the presentation of costs and outcomes in a disaggregated way. The CCA results and potential policy implications are presented in the next Sections.

4. RESULTS

This Section firstly presents how costs were estimated, followed by the cost and outcome results: both will be then included in the CCA table.

4.1. Estimation of costs

The costs incurred by the NHS provider Trusts are essentially determined by the students' placements. By consulting the relevant guidance (Department of Health, 2016), we identified the placement unit cost per student (Figure 1), which corresponds to a year's worth of placement, or 850 hours.

[Insert Figure 1 here]

The tariff for children's nurses (£3,112) is adjusted by the Market Forces Factor (MFF), which calibrates the NHS resource allocation to a specific Trust to control for unavoidable cost differences between different parts of the UK (Monitor and NHS England, 2016). Lastly, an additional payment (2.0408% of placement tariff + MFF) is entered[2].

For the universities' costs, a costing study commissioned by the Higher Education Funding Council for England (HEFCE) (KPMG, 2017) provides useful data. This study estimates the mean annual full economic cost per full-time equivalent pre-registration student for 2014/2015. For the 29 undergraduate (UG) and 6 postgraduate (PG)

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[1] At Site 2, given the evaluation's time limitations, information on the students' professional destinations could only be gathered just before their graduation.

[2] To test this approach, we estimated the placement unit cost for another NHS Trust in the same region of HEE. We compared this estimate with the actual figure given by the university delivering the associated children's nursing pre-registration course. The difference was minimal, thus successfully validating our approach.

children's nursing courses sampled, this estimated cost is £9,994 and £9,734, respectively. Measures of statistical dispersion are not explicitly reported: therefore, a rigorous sensitivity analysis on these cost estimates was not feasible. Combining UG and PG courses, centrally allocated indirect costs represent the highest category of cost (34.8% of all costs), followed by staff (33.5%), indirect department (13.0%), estate (9.6%), non-pay (4.9%) and sustainability adjustments costs (4.2%); for details on what the cost categories include, see KPMG (2017).

To estimate the mean annual unit cost for our period of interest (2016/2017), the 2014/2015 values were adjusted for year-over-year cost changes in the higher education sector for the intervening years; using higher education's cost shifts, rather than general inflation, is advocated within the industry (Council of Deans of Health, CoDH, 2014). Within HEFCE (2017, 2018), yearly changes are computed for cost categories broadly assimilable to the cost categories abovementioned for KPMG (2017). Table 2 shows the correspondence between the two sets of cost categories and the cost estimates for 2016/2017. Overall, with first-hand data on the universities' costs lacking, we believe that our approach to estimate these costs is a sensible methodological expedient informed by reliable sources in the health and higher education industries.

[Insert Table 2 here]

The main results are in the last two columns of Table 2: the estimated annual unit costs per student for 2016/2017 are £10,635.68 and £10,358.99 for UG (as in Site 1) and PG courses (as in Site 2), respectively.

Lastly, HEE costs are simply given by the sum of the costs to the Trusts and the costs to the universities.

Given the above analytical steps, our cost results are below presented by site.

4.2. <u>Site 1 costs</u>

C1. At Site 1, a MFF equal to 1.06 is applied to the placement tariff per student (£3,112). Therefore, the placement unit cost per student is estimated as £3,355.88. As each placement lasted 850 hours, the placement's estimated total costs per student are equal to the unit cost.

C2. For the participating university, the estimated annual unit cost per student is £10,635.68. As the course lasted 1 year, the estimates for annual unit cost and total costs coincide.

C3. The programme's estimated total costs are £13,991.57 per student.

4.3. <u>Site 2 costs</u>

C1. The MFF at Site 2 was lower than at Site 1 (1.04), determining a lower placement unit cost per student, estimated as £3,302.10. However, students had 1700 hours of placement altogether: therefore, the estimated total placement costs per student are £6,604.19.

C2. The estimated total annual unit cost per student incurred by the participating university is £10,358.99. As the course lasted 2 years, the course's estimated total costs per student are £20,717.98.

C3. The programme's estimated total costs are £27,322.17 per student.

Having quantified the costs, the outcome results are presented below.

4.4. <u>Site 1 outcomes</u>

O1. 10 students were recruited into the programme: 6 (60.0%) had a Band 5, 2 (20.0%) had a Band 6 and other 2 (20.0%) had a Band 7 position.

O2. 1 student did not commence the programme, and 1 other stepped off during it. The remaining 8 students completed the programme, thus determining an 80.0% completion rate.

O3. Six graduate nurses ended up on the same professional bands they had prior to the programme. For the remaining 2 graduates, the new bands were lower than the starting ones. Most graduate nurses (n=7, 70.0% of those recruited, and 87.5% of those who completed the programme) took on a position in children's care. All graduates are professionally located in the same region where they studied.

Four graduate nurses went to work within the participating children's hospital, resulting in a 40.0% retention rate, considering the sample of prospective students (N=10), or a 50.0% retention rate, considering the sub-sample of those who completed the programme (n=8). Of the remaining 4 graduates, 3 (30.0% of prospective students, and 37.5% of those who completed the programme) went to work within the same NHS provider Trust, while 1 (10.0% of prospective students, and 12.5% of those who completed the programme) went to work for a different Trust.

No information was available as to how many graduates took on a full-time or part-time role.

4.5. <u>Site 2 outcomes</u>

O1. At Site 2, 10 students were recruited into the programme. As opposed to Site 1 students, who were already registered nurses, at Site 2 all prospective students had a pre-registration status, with most of them (n=9, 90.0%) who had had professional experiences in children's care.

O2. All students completed the programme (100.0% completion rate).

O3. As mentioned, information on professional destinations could only be collected just prior to graduation: at that time, all 10 students were heading for posts in children's care in the same region where they studied. Information on the professional bands of the graduates was unavailable.

Five prospective nurses were heading for posts within the participating children's hospital (50.0% retention rate). The other 5 were heading to work within 3 different Trusts.

Lastly, 9 students intended to take full-time posts (90.0%). Within the participating Trust, 4 (out of the 5 students who were heading to work there, 80.0%) intended to work full-time, while 1 (20.0%) intended to work part-time.

4.6. <u>CCA table</u>

Our analysis culminates in the disaggregated visualisation of the costs and outcomes in the CCA table (Table 3). The estimated total costs per student at Site 2 are substantially higher than those at Site 1, due to the longer placement and university course. Unit costs for the placements and the university courses are similar across the sites. On the outcomes, these appear somewhat better at Site 2, as the retention and completion rates attest. The next Section discusses potential policy implications deriving from these results.

[Insert Table 3 here]

5. DISCUSSION

Drawing clear-cut policy implications from the CCA results is rather complex. Despite markedly higher estimated total costs per children's nurse, the programme at Site 2 outperformed Site 1 in terms of the completion rate and the professional destinations of the graduates. Notably, all graduates chose professional destinations in the funder's region, determining an overall favourable outcome for HEE.

The programme at Site 1 was designed to potentially offer desirable outcomes for the involved parties. On the one hand, the participating children's hospital had the possibility of recruiting new children's nurses - which importantly were not new to the pressing characteristics of the nursing profession – to tackle its workforce shortage. On the other hand, these existing nurses, keen on exploring different career opportunities, were enabled to switch to a different, and possibly more stimulating, nursing field. Overall it could be argued that the participating Trust would be in a position to counter two problems at the same time: one on the shortfall in children's nurses, and the other on the retention of existing nurses who might have been retained with difficulty otherwise. However, one could counter argue that the new children's nurses would contribute to depleting the workforce of other nursing fields, thus leaving the Trust with a worse shortage elsewhere. This is perhaps one of the main weaknesses of the programme at Site 1, potentially impacting on the care provided in these depleted nursing fields: nevertheless, investigating these impacts goes beyond the (economic) scope of this paper.

With these a priori expectations in mind, the results for Site 1 programme on the completion and retention rates, and the professional destinations of the graduates, seem to partially meet the expected outcomes. Therefore, the economic effectiveness of this programme seems not to have been wholly achieved (for clinical and organisational implications, see Daune et al., 2018).

The programme at Site 2 focused on the recruitment of children's nurses with previous experience of working with CYP, thereby avoiding depleting the workforce of other nursing fields. In addition, the newly qualified children's nurses would graduate with a Master's degree, beyond what is normally achieved with a standard pre-registration path. In principle it appears that this programme would tackle the shortage of children's nurses, desirable for the participating children's hospital, and would provide an opportunity for employment into the nursing profession and further career development, desirable for the participating students. However, the quick career development potentially triggered by the Master's qualification, while facilitating the move of new children's nurses to specialist roles, would leave the shortfall in the entry roles unresolved.

Looking at the actual results of the programme at Site 2, the considerable difference in the estimated total costs compared with Site 1 may be justified by the need of providing an intensive programme to a relatively inexperienced cohort. In terms of the outcomes, while the retention rate (out of the graduate nurses) is the same across the two Sites, the completion rate and the professional destinations of the students (all with prospective posts in children's care) appear more satisfactory than those at Site 1. Whether these better outcomes can be indicative of a better economic value depends on the degree to which HEE is willing to incur Site 2 higher costs.

Our considerations on the CCA results come with important caveats. Firstly, the costs for the participating universities might be substantially different. As described earlier, the lack of first-hand data cannot allow us to determine the actual amount of these costs. However, we estimated the universities' costs using reliable data sources from the health and higher education industries, thus we believe that any difference may be marginal.

Secondly, the small number of students in both programmes suggests caution when attempting to extrapolate the impacts of similar programmes, since bigger numbers may lead to significantly different findings. Moreover, the two accelerated programmes were implemented in the same region, making the socio-economic context a key factor to consider when evaluating similar programmes implemented elsewhere.

Thirdly, the time horizon of our evaluation was necessarily constrained by its allotted short-term timescale. Longer term effects, particularly in relation to the workforce depletion of other nursing fields (Site 1) and the change in vacancy rate in entry roles (Site 2), may modify the outlook on the programmes' effectiveness.

Lastly, as mentioned, all the professional destinations of both sites' graduates are in the funder's outreach region. Thus, beyond the economic effectiveness of the individual programmes, there may be broader outcomes to consider on the part of HEE.

Despite these caveats, we think that the contributions of this work are two-fold. From a literature point of view, there seems to exist a lack of economic evaluations of nursing education programmes. This work attempted to fill this gap while contributing to determine whether the programmes helped mitigating the shortfall in children's nurses.

Linked to the first contribution, methodologically we added to the development of a standardised approach to evaluate nursing education programmes. We adopted an underused economic method, the CCA, which diversifies the methodological toolbox for similar economic evaluations. Adopting the CCA may be useful in contexts where costs and outcomes are rather disparate, thus making the interpretation of a typical aggregate metrics (e.g. ICER) arduous for the decision-makers. In our evaluation, the adoption of the CCA led to detailed results readily interpretable by the decision-maker.

6. <u>CONCLUSIONS</u>

This study has evaluated the economic effectiveness of two accelerated programmes in children's nursing implemented in England. In particular, the first was a 1-year programme designed for UK-registered nurses in adult or mental health, while the second was a 2-year programme for graduates with a first degree on child and/or social care and experience of working with CYP. The results attest that the second programme had higher estimated costs but more satisfactory outcomes, given by a better completion rate and the professional destinations of the graduates, all with prospective posts in children's care.

Our study contributes to fill a gap in the literature by helping the development of a standardised approach for economic evaluations of nursing education programmes. More practically, our evaluation sheds light on whether the accelerated programmes effectively tackle the workforce shortage in children's nursing, which represents a critical problem for the UK health system and others.

For these reasons, we believe that our evaluation can pave the way for future research. Future work would benefit from a better availability of data, which in turn would help obtaining more robust results. Moreover, investigating programmes with larger number of participants, geographical implementation and time horizons may be more impactful. Shortage in nursing workforce is perhaps one of the most critical problems affecting the NHS, both presently and in future: therefore, evaluations such as ours are likely to be increasingly important in years to come.

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Table 1

Attributes of the economic evaluation.

Problems	Workforce shortage in children's nursing
	Development of sufficiently skilled workforce
Interventions	Site 1: Bachelor of Science or Postgraduate Diploma in children's nursing for registered nurses in adult or mental health (2016/2017)
	Site 2: Master of Arts in children's nursing for graduates with experience with CYP (2016 to 2018)
Perspective	HEE
Costs	Costs to NHS provider trust to support each educational programme
	Costs to HEI to recruit to and deliver each educational programme
	Costs to HEE to fund each educational programme
Outcomes	Recruitment rate of students
	Completion rate of students
	Professional destinations of graduates
	Retention rate of graduates
Cost data capture methods	Desk review of administrative documentation and grey literature
Outcome data capture methods	Focus groups and workshops with students and staff
	Telephone interviews with students
Analysis method	CCA
Reference year for cost estimates	2016/2017
Time horizon of analysis	Duration of programmes

Figure 1

Components of placement unit cost per children's nursing student, for placement activity undertaken by the participating NHS provider Trusts in the period 2016/2017.

Source: (Department of Health, 2016), p. 12.

Table 2

Analytical process behind the estimates of weighted mean annual unit cost per children's nursing student for UG and PG courses undertaken by the participating universities in the period 2016/2017.
Source: KPMG, 2017, HEFCE, 2017, 2018, and authors' own analysis.

Cost category in KPMG (2017)	Estimated weighted mean unit cost in 2014/2015 £		Assimilated to cost category in HEFCE (2017, 2018)	% change from 2014/2015 to 2015/2016 (HEFCE, 2017)	% change from 2015/2016 to 2016/2017 (HEFCE, 2018)	Estimated weighted mean unit cost in 2016/2017 £	
	UG	PG				UG	PG
Staff costs	3,343.67	3,256.68	Staff costs	-0.5	4.9	3,489.79	3,399.00
Centrally allocated indirect costs	3,482.65	3,392.05	Other operating expenses	3.2	3.9	3,732.93	3,635.81
Indirect department costs	1,298.87	1,265.08	Other operating expenses	3.2	3.9	1,392.21	1,355.99
Estate costs	957.90	932.98	Other operating expenses	3.2	3.9	1,026.74	1,000.03
Non-pay costs	487.95	475.26	Other operating expenses	3.2	3.9	523.02	509.41
Sustainability adjustment costs	422.96	411.95	Depreciation Interest and other finance costs	5.6	5.5	471.00	458.75
Total	9,994.00	9,734.00				10,635.68	10,358.99

Table 3

Cost-consequences analysis for accelerated children's nursing programmes conducted at Site 1 and Site 2: estimated total costs per student/children's nurse and outcomes over the whole course of the programmes.

Costs to partners		Costs to funder		Outcomes	
Site 1					
C1. Costs to NHS provider trust to support educational programme £	3,355.88	C3. Costs to HEE to fund the educational programme (C1+C2) £	13,991.57	O1. Number of nursing students recruited	10
				O2. Number of nursing students completing the programme	8
				Completion rate %	80.0
				O3. Number of graduate nurses working in a children's care setting	7
				Number of graduate nurses working at Site 1	4
C2. Costs to HEI to recruit to and deliver the educational programme £	10,635.68			Retention rate in the participating children's hospital	
				Out of recruited students %	40.0
				Out of graduate nurses %	50.0
Site 2					
C1. Costs to NHS provider trust to support educational programme £	£6,604.19	C3. Costs to HEE to fund the educational programme (C1+C2) £	27,322.17	O1. Number of nursing students recruited	10
				O2. Number of nursing students completing the programme	10
				Completion rate %	100.0
	20,717.98			O3. Number of graduate nurses prospectively working in a children's care setting	10
C2. Costs to HEI to recruit to and deliver the educational programme £				Number of graduate nurses prospectively working at Site 2	5
				Retention rate in the participating children's hospital	
				Out of recruited students %	50.0
				Out of prospective graduate nurses %	50.0